Five Big Ideas on Early Brain Development: What Every Caregiver Should Know

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Our Vision: Every Child Becomes a Reader

• Team of experts in brain science, language development, child psychology, reading development, children with special needs, and research
• Grounded by many years of hands-on experience in early childhood settings and with individual children and families
• Highly successful in creating tools and professional development that combine the best science with practical materials and concepts that ANY early childhood educator can use

Our Focus is on Children 0–8

• Language and literacy foundation is built from birth, if not before
• 40% of entering kindergartners are behind, and half are behind by 2 years or more
• Science has proven what it takes for nearly every child to become a reader
• Nemours is lending expertise as a health imperative
**Literacy Statistics**
- Reading aloud to infants helps stimulate brain development yet only half of infants are routinely read to by their families.
- By age 3, a 30 million word gap is evident among children of diverse home environments.
- 40% of children entering kindergarten lack pre-literacy skills needed for success.
- A child who finishes 2nd grade without being able to read has only a 1:4 chance of catching up by the end of elementary school.
- A child who is not a fluent reader by 4th grade is likely to struggle with reading in adulthood.
- 64% of 4th graders nationwide scored “below proficient” and 2/3 of 8th graders do not read at grade level.

**Literacy/Health Connections**
- Low literacy adds $238 billion per year to U.S. health care costs.
- Adults with low literacy are 3 times more likely to have an adverse health outcome than adults with higher literacy skills (Weiss & Palmer, 2004).
- For non-pregnant adult patients on Medicaid, those with <3rd grade reading skills had Medicaid charges >3.5 times higher than those with better reading skills (Weiss et al., 1992).

**What Causes Reading Failure?**
- Nature of reading process
- Genetics and neurobiology
- Environment
Reading Is An Unnatural Act!

- Humans are genetically and neurologically hard-wired for speech
- Not true for reading, which must be learned through conscious effort
- Reading makes high demand on brain's integration capacity

Learning to Read

Word Recognition
- Print Awareness
- Phonological Awareness
- Decoding
- Sight Recognition

Language Comprehension
- Vocabulary
- Verbal Reasoning
- Language Structures

Reading Circuitry

- Broca's Area: Speech and Word Analysis
- Primary motor area
- Primary somatosensory area
- Parietal lobe
- Occipital lobe
- Primary visual area
- Primary auditory area
- Temporal lobe
- Word Form

FLUENT READING
Dyslexia

- Occurs in 15 – 20% of population
- Dyslexia clearly runs in families
- Each child of an affected parent has a 30-50% chance of being affected
- Twin studies show MZ twins are more likely to both have dyslexia than DZ

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Big Idea 1

64% of America’s 4th graders score “below proficient in reading (Nation’s Report Card, 2015)
Why Is This Important for Early Childhood Providers?

- The foundation for reading is built starting from birth.
- It is built word by word, song by song, book by book, through daily strategies and routines.
- You have the power to change these statistics.

What Can You Do About It?

- Know this fact and why it happens.
- Understand how reading skill development happens.
- Be intentional every day in your programs.
- Advocate for children in your communities.

Let's Reflect
We can reliably identify children at risk for reading struggles early in Pre-K. (see reference list at end)
Why Is This Important for Early Childhood Providers?
• You serve prekindergarteners
• You address educational needs
• You have great parent engagement opportunities

What Can You Do About It?
• Be intentional and explicit with early literacy instruction
• Screen your children for reading readiness (Get Ready To Read, alphabet letter assessment)
• Teach small groups
• Use multi-sensory instruction
• Strive for 15-18 letters by end of Pre-K
Emergent Drawing and Writing Support
Learning the ABC's Too!
**Big Idea 3**

By age 3, children from a language rich environment know about 1,100 words. Their peers from impoverished environments know only about 500. ([http://www.zerotothree.org/policy/images/zt-word-gap.png](http://www.zerotothree.org/policy/images/zt-word-gap.png))

**Why Is This Important for Early Childhood Providers?**

- Some of your children are likely to have lower vocabulary knowledge
- You have a great opportunity to build vocabulary
- Young brains are BUILT to learn language

**What Can You Do About It?**

- Talk, read and sing
- Use a variety of words (nouns, verbs, adjectives, adverbs)
- Explain how words relate to one another
- Provide lots of experiences and opportunities that encourage vocabulary
Let’s Reflect!

POLL

Big Idea 4

85% percent of brain development is completed by age 3

Why Is This Important for Early Childhood Providers?

- You have a huge impact on lifelong outcomes of children you serve
- Every positive interaction builds brain strength and resilience

What Can You Do About It?

- Understand how the brain develops, and when
- Be responsive and loving to your children
- Provide stimulating activities and materials

Let’s Reflect!
Big Idea 5
700-1,000 new neural connections form each second in a baby's brain.


Why Is This Important for Early Childhood Providers?

• You work with children and families starting from infancy

• You have as much opportunity to influence brain development as anyone

• If you don’t know this fact, you will miss critical opportunities to enhance brain development
What Should You Do About It?
Recognize the opportunity and take advantage
Share key facts and ideas with parents
Learn to spot babies’ communication cues

Lessons from Brain Science
• What gets “fired” gets “wired” (Use it or lose it)
• Movement helps learning and memory
• Multi-sensory learning is great for everyone
• Emotions impact learning – remove anything punitive or threatening, promote safe and supportive environment

• The brain naturally seeks patterns and compares “new” to “existing” to determine if it “fits”
• Promote general and specific curiosity
• Encourage making predictions
• Highlight key features of what you want to teach
Lessons from Brain Science

- Use "parentese" freely with infants (highlights salient, distinguishing language and speech features)
- Color code, vary size or texture, for instructional target (e.g., letter of the week)
- Provide developmentally appropriate activities and solvable challenges to build problem-solving and resilience

Lessons From Brain Science

- Humans are inherently wired for socially contextualized learning and imitation
- Sleep is critical, for brain rest, and consolidation of experiences and new learning


Let's Reflect!
References


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